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The Geographical Concentration of Hotels in Switzerland and the Industry Life Cycle

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Abstract

Empirical studies of numerous products and industries have shown that the evolution of variables such as the market price of a product, output, and the number of competitors in an industry are non-monotonic and follow a typical pattern over the life span of that industry.

The Swiss hotel industry has been experiencing stagnation, even decline, for a period of over twenty years. This can be measured both in terms of arrivals, overnight stays, and perhaps most importantly, the number of firms. Thus the number of hotels in Switzerland has declined by over 10 percent in the past decade. This decline is forecast by the life cycle model. These models, however, tell us little about where geographically the decline would take place.

The aim of this paper is firstly to verify if the evolution of the Swiss hotel industry fits some of the stylized facts of the industry life cycle. The second aim is to verify if there is evidence of geographical clustering of the hotel industry, and by extension of tourism. The third aim is

to verify a hypothesis that the decline or final phases of the industry life cycle will lead to greater concentration of an industry; In other words that the decline manifests itself mainly in decentralized locations.

Introduction

The Swiss hotel industry has been experiencing stagnation for a period of several decades (Wachter & Elsasser, 1994). This can be measured both in terms of arrivals, overnight stays, and perhaps most importantly, the number of firms. Many hotels have been closing down, throughout Switzerland. At the same time, tourism has begun to play a much lesser role in the economy. This decline is to some extent forecast by the so-called product or industry life cycle model. This model, however, tells us little about where geographically the decline would take place. It is the aim of this paper to propose a link between the life cycle model and geographical concentration.

The Product and Industry Life Cycle

A number of models have been developed in the past, to try to explain the evolution of a competitive industry (see for instance Gort & Klepper, 1982; Agarwal & Gort, 1996; Klepper, 1996). These studies typically claim the existence of a so-called product or industry life cycle, and have in common a number of stylized facts to describe the evolution of an industry over its life cycle. The idea of the product life cycle may be traced all the way back to Kuznets (1930) who studied the time series of output and prices for a number of products. Most famous though is Vernon's (1966) seminal paper. In some ways product life cycle theory has evolved towards a theory of endogenous evolution, embedded in the industry life cycle. An important paper by Michael Gort and Stephen Klepper (1982) generated a number of stylized facts for the industry life cycle. Later work has added a number of additional ideas, but in the present analysis, we will limit ourselves to examining the original stylized facts of Gort and Klepper (1982). These facts are very well summarized in Jovanovic (1998), but before recalling these; let us examine briefly the various stages in the life cycle of an industry.

The evolution of a product in a competitive industry is said to go through a number of stages from invention and early development to decline and eventual death (Vernon, 1966). The stages may be examined both in terms of sales and output (quantity) and in terms of the number of firms operating within the industry or providing the product. Another measure, of interest notably for the economic geographer, could be the number of workers in that industry. Over the past 20 years or so, scholars describing the industry life cycle have been most keen on examining the number of firms and the net entry (which is defined as the number of firms entering the industry, minus the number of firms exiting the industry). If we examine the number of producers in any given industry, we may decompose the evolution of that industry into five distinct stages. This is illustrated in figure 1.

FIGURE 1. Stages of Product Life Cycle

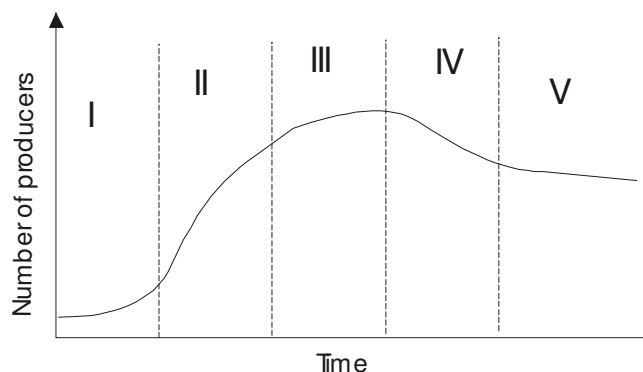


Figure 1. Stages of product life cycle

In stage I, following the invention of the product, a small number of producers exist within the industry. Stage II illustrates the time when the industry finds itself in a high growth phase. During this phase abnormal profits will tend to attract new firms into the industry and output will also exhibit high growth. Stage III is a period where the number of firms stabilizes before falling off again in stage IV. Stage V is one where net entry stabilizes until some fundamental disturbance hits the industry. It need not be assumed that any given product must

pass through each of the five stages during its lifetime. Indeed, empirical studies have shown that the duration of each of the stages is variable. The duration should logically depend on the specific competitive environment of the given market and the nature of the product or industry in question.

Within the tourism geography literature, the product life cycle theory has evolved into a theory of the Tourist Area Life Cycle (Butler, 1980). The concept is essentially the same as the product or industry life cycle, except that the object of study is no longer a single product or industry, but rather an area or destination. We are not concerned in this paper with a single destination, but a whole industry, limited only by the national borders of Switzerland. In this sense our analysis covers all tourist areas within the country.

Jovanovic (1998) summarizes some of the stylized facts of the industry life cycle as being :

- (i) sales and output grow at a rate declining with the product's age, and converging to zero.
- (ii) product price declines steadily but at a slowing rate with the product's age.
- (iii) after product birth, a rapid entry of new firms precedes a mass exit (often called a shakeout), followed by a stabilization.
- (iv) innovation in general does not seem to decline with the age of the product but the importance of early inventions or innovations is greater than that of latter ones in the product's life.
- (v) any given firm's exit hazard declines with its own age.
- (vi) any given firm's exit hazard rises with the age of the industry.

The evolution of a competitive industry therefore seems to follow some clear path. Variations, sometimes important, may exist, but every industry is said to more or less go through these clear stages. The life of the (narrowly defined) industry, or product, starts with a discrete event, namely the invention of the product and its introduction into the market. This last distinction is important. The product life cycle can only commence once the new product is marketed. An initial supplier is willing and able to supply the product to one or more customers. If the product meets some demand on the market, an industry is born. In as much as the industry takes off, the initial firm producing the product will benefit from abnormal profits due to its situation as a monopolist. If there are few or no barriers to entry, the abnormal profits of the producing firm will attract other firms to enter the market. These entrants in turn will contribute to develop the market for the product and will attempt to differentiate themselves through innovation. This innovation activity will lead to the creation of new profits, which again will attract more entrants. The price of the good will rapidly decrease, reflecting the movement from monopoly to oligopoly, to monopolistic competition and possibly to perfect competition.

The industry growth of sales and output will therefore initially be very high and rising. However, the rate of growth will quickly slow down (often within a few years) as the rate of entry becomes greater than the growth rate of profits. Eventually, the nature of innovations and of competition in the industry will change, in such a way that the growth rate of sales and output stabilize and will converge to zero, or even negative growth. At this point a number of the less efficient competitors will exit the industry. The price of goods will diminish more slowly towards the end of the growth of the industry and may even stabilize and increase as the market becomes a niche, and the number of competitors goes down.

An interesting phenomenon is that innovation activity will continue throughout the life of the product. Constant product improvement and productivity gains will characterize the industry, even if the nature of this innovation will change. The most drastic innovations occur in the beginning of the life of the industry.

In terms of firm survival, it appears that firms, which have been present in the industry for a long time, are also those, which have the highest probability of surviving in the industry. Newer entrants, on the other hand, appear to run a higher exit hazard. Perhaps this may be explained by the existence of economies of scale, of advantages linked to experience or capabilities (Klepper 1996). Customers may also be more locked-in than in the initial phases of the life cycle of the industry.

Based on the life cycle model outlined above, we can formulate a first series of hypotheses to be verified in this paper as follows:

Hypothesis 1a: The evolution of an industry exhibits non-monotonic growth over time in the number of firms, such that for an initial period there is mass entry, followed by mass exit as the industry reaches maturity. Eventually the number of firms stabilizes at a level below the maximum.

Hypothesis 1b: The evolution of an industry exhibits non-monotonic growth over time in output, such that for an initial period output growth is positive but decelerating, until it eventually reaches zero. Eventually the output may drop as the products sold are replaced by new substitutes.

Hypothesis 1c: The evolution of an industry exhibits non-monotonic growth over time in the average price charged for its products. The price declines with industry age, stabilizing towards the end of the life cycle.

We will now attempt to verify this series of hypotheses for the Swiss hotel industry.

Early History of the Swiss Hotel Industry¹

The origins of tourism in Switzerland may be found as early as the eighteenth century. In the early years of that century it became fashionable for the Swiss upper class to send their young ones on a trip through their own country in order to experience their cultural heritage, gain perspective and perhaps toughen them. This was also the time when the English tradition of the Grand Tour was spreading and became a must for young educated men who wished to be considered gentlemen. The young men travelled anywhere between a few months and several years. During this time they toured the great sights of Europe and particularly Italy attracted many visitors. By the middle of the century, a majority of these visitors included Switzerland in their Grand Tour. Towards the 1760s, this travelling activity increased radically and mountain travelling in particular was largely dominated by the English.

During the later part of the eighteenth century, a number of prominent French, German and English writers and poets visited Switzerland and wrote important works praising the country and its mountains at the height of romantic writing. The peaks were as yet, though, mainly admired from a distance, standing majestically over Lake Geneva or at some distance from Zürich. With the nineteenth century came a renewed interest in the mountains as climbers converged on the Alps in a bid to beat each other to the summits. The inhabitants of the Alps

were by no means well off. In fact, during the first half of the nineteenth century many villages saw their younger ones abandon the traditional farming to go to the cities or even overseas for better jobs. In 1800 about two-thirds of the working population were active in the primary sector, with only 26.3% in the secondary and 7.9% in the tertiary sectors (Zünd, 1969). Even in the 1860s, the Canton of Valais had no more than 480 industrial workers², synonymous with a lack of industrial development in a mountainous region dominated by the traditional way of life³. The Alps were in many ways dying at the middle of the nineteenth century. The growth of tourism would, however, soon counter this trend.

Inns had existed since at least the Middle Ages in Switzerland. The status of inn-keepers appears to have been good and evidence shows that already in the early eighteenth century staying in Switzerland was considered expensive. The quality of the Swiss inns was also noted as being superior. Thermal baths were developed quite early and low-lying places like Interlaken and Luzern saw the opening of many pensions in the early nineteenth century. Sizeable inns, which could be called the first hotels, were operating profitably in cities like Zürich by this time. The first half of the nineteenth century also saw the creation of railways across Europe. This was a necessary step, needed for mass tourism to be even remotely possible. Before the railways, travelling to Switzerland from England and even from Germany, France or Italy was an uncomfortable, slow and expensive process. In fact the transportation costs by far outweighed the actual cost of staying in Switzerland. But this new technology would soon revolutionize travel in Europe and, most importantly, allow the middle class to travel.

The early stages of the hotel industry in Switzerland, and in particular the development of tourism in the Alps, were characterized by the kind of entrepreneurial spirit which one now,

erroneously, often only associates with high-tech industries. There were real pioneers of tourism, such as Johannes Flugi and the Badrutt family of St. Moritz, Alexander Seiler of Zermatt, or the Durrer family. These were men who had a vision for the development of their respective villages. They were motivated by the pursuit of profit and did not hesitate to invest everything they owned in the building of the first grand hotels of Switzerland. They knew that they could attract the upper-class English, who had a high willingness to pay, but also expected high standards. Therefore, the Swiss hotels were very early on built as palaces, filled with antiques purchased in France and Italy, catering for the rich and famous. Royalty and political heads streamed to the mountains to enjoy the majestic scenery and the luxuries offered to them. Growth only attracted further investments and the building of new hotels, as well as the expansion of existing ones. Between 1886 and 1895 (less than a decade), the number of visitors to Davos, for instance, doubled, reaching an annual 13,220 visitors.

During these booming years, tourism was able to put a stop to the exodus of previous decades. Labour was attracted back to the mountains. The population of Davos increased as a direct result of the development of tourism and the creation of hotels (as shown in the following table⁴).

TABLE 2: Population Growth Rate of Davos, 1838-1910

Year	Population of Davos
1838	1803
1850	1680
1860	1705
1870	2002
1880	2865

1888	3891
1900	8089
1910	9905

Innovation in this newly born hotel industry was very common in the early years. In fact, most of the services that modern tourists take for granted were invented or adapted to tourism in these years. New spas were opened and existing ones improved; Sanatoriums drew wealthy guests suffering from tuberculosis to the soothing air of the Alps; Water closets were imported and installed at great expense; Various summer sports were developed (including fishing, hunting, rowing and swimming in mountain lakes, lawn tennis, croquet and lawn bowling), and most importantly, winter sports were developed to create a second season and thereby greatly increase returns on investment. Another important innovation in the over-all travel and tourism industries was the quasi-invention of the Tour Operator by Thomas Cook. He organised his first tour in 1841, a rail excursion for a Temperance Society meeting, before launching into continental travel tours in 1855. This was hugely successful and it was not long before the scheme was copied by competitors.

Further tourism and hotel-related innovations of the mid to late nineteenth century include the gourmet hotel restaurant; Funicular railways; The introduction of increasingly varied entertainment for guests such as concerts, billiard and games rooms, libraries full of books and gambling⁵; Increasingly elaborate gardens for guests to stroll in etc. But perhaps the greatest innovations were those related to winter sports. English tourists themselves introduced skating, as an alternative occupation to simply walking and sleigh riding. Sledding was also introduced by the tourists themselves. Toboggan runs were built (among them the famous Cresta Run). Later came curling and ice hockey. Skiing was introduced rather late in

the Alps, having existed long before in Norway. Skiing timidly took off during the 1890s but only truly caught on two decades later. By 1912, car rental was becoming a common thing⁶.

A Life Cycle Analysis of the Swiss Hotel Industry

We may now attempt to verify hypotheses 1a to 1c. Based on official data from the Federal Swiss Office of Statistics we have compiled a time series of yearly data for the number of hotel and spa establishments in Switzerland. From this we were able to establish a series of the net entries defined as:

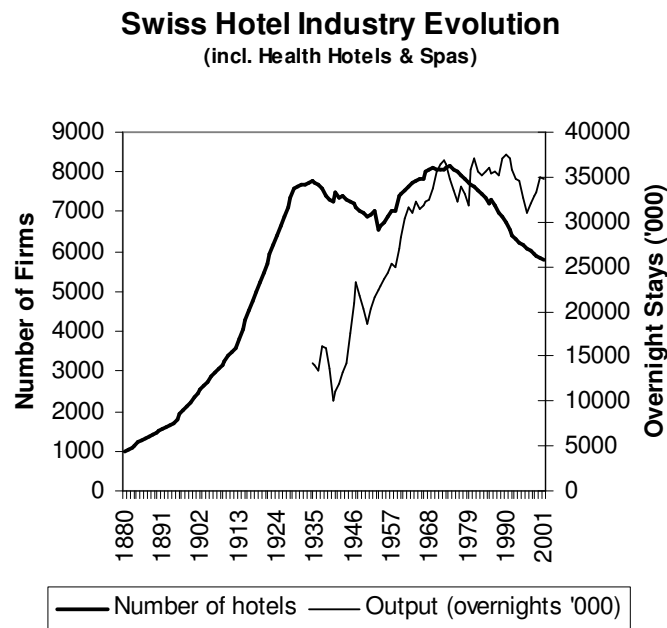
$$\text{Net entry} = (\text{Number of firms entering the industry}) - (\text{Number of firms leaving industry})$$

Another time series was established with the number of over-night stays. The total number of nights spent in a Swiss hotel per year can be considered the yearly output of that industry. In addition to this one could examine capacity, given by the number of available rooms or beds. It could be that excess capacity is non-monotonic over the life cycle. However, since we are mainly interested here in output, not capacity, we will not examine the latter. In addition to the output data, we compiled data on prices from the Swiss Consumer Price Index.

It must at this point be noted that we found it extremely difficult to find national data going sufficiently far back to take into account the entire life cycle of the hotel industry. A complete analysis would require data from at least the early nineteenth century onwards. Published yearly data from the Federal Office of Statistics goes back to 1934 only. Price data only goes back to 1977. The analysis is therefore somewhat limited by the availability of reliable data.

In addition to the data mentioned, one can note that based on earlier surveys by the Federal Office of Statistics, the number of hotels in 1880 was 1002, in 1894 was 1708 and in 1912 was 3585⁷. Figure 2 illustrates our reconstructed evolution of output and the number of hotel establishments from 1880 to 2001. (The reader should note that this figure employs simple extrapolation based upon the few available data points. As we shall see, the First World War in fact led to a temporary slow down.)

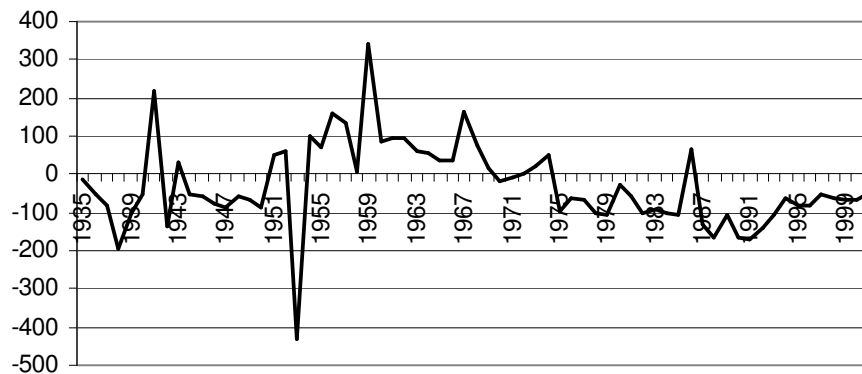
FIGURE 2: Long Term Evolution of the Number of Firms and Output



From what we know then, we can reasonably deduce that the number of firms active in the hotel industry was at a maximum at some point in the period 1929-1934 and a second time in 1974. Figure 3 shows the net entry in the period 1934-2001.

FIGURE 3: Net New Firm Entry Into the Hotel Industry

Net Yearly Entry



We can now compare the data with some of the stylized facts of the industry life cycle. In fact we find that the data we have fits the theory quite well.

Historical sources indicate clearly that the hotel industry took off in the second half of the nineteenth century. We can say that phase I of the life cycle took place in the years prior to 1880. During this period, the first major hotels were built, and the winter season was invented. The period 1880 – 1930 saw impressive growth. Following this initial growth, it appears that demand growth started slowing down a first time around 1910, already before the First World War. Prices likewise may have started to fall. To quote Bernard (1978: 174):

“For the whole of Switzerland, a diminution of both the total number of hotel guests and the income earned by hotels begins in 1908, if one considers the summer season only, in 1911 if one takes the whole year. In retrospect it can be seen that, for approximately two decades, the number of hotel beds had been expanding at a considerably higher rate than the corresponding increase in the number of tourists. While, at the beginning of this cycle, large numbers of

travellers were competing for an insufficient number of beds, by the end of it the shortage had not only be made up but been replaced by a surplus of offerings.“

It would appear then that a first slow-down of demand affected the industry in the decade following 1910⁸. During this decade, the First World War in particular would have seriously affected the tourism industry. Due to a lack of data, we are however not able to evaluate the exact extent of this slow-down. What we do know is that it did not affect the long-term growth in the number of firms, or in output. In fact, ignoring these short-term fluctuations, we can say that the growth phase, phase II, of the Swiss hotel industry, lasted all the way to the early 1930s. This was when, for the first time, a significant number of firms exited the industry. In fact, between 1933 and 1953, net exit exceeded 15 percent of hotels. One may be surprised that this figure was not higher. The period leading up to and including the Second World War, was obviously a special period which greatly influenced mobility in general, and tourism activities in particular. The Swiss hotel industry suffered the consequences of this. It is interesting to note, however, that the loss of foreign tourists was partially offset by an increase in domestic tourism. As is often the case, strong home demand can be a very good cushion against foreign demand fluctuations. Another important factor was that the international travel industry still grew considerably after the Second World War. Major innovations were still being made in travel. The commercial jet, for example, was only introduced in the late 1950s.

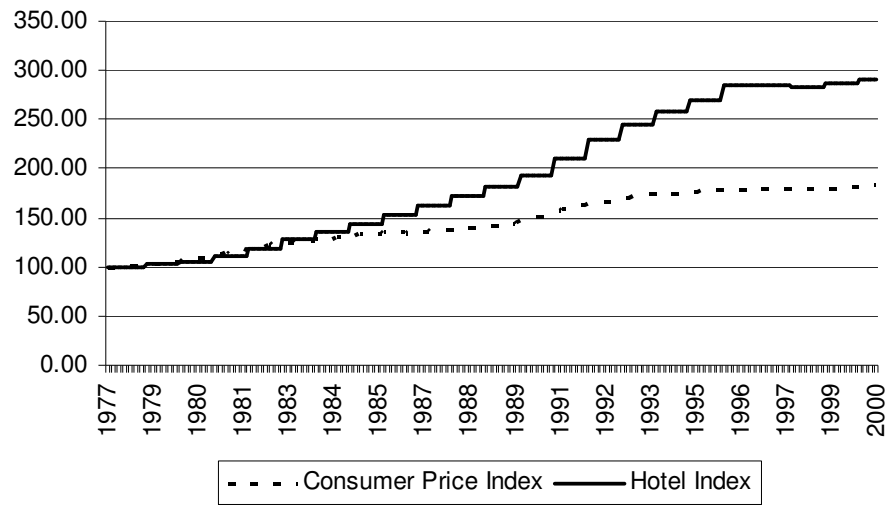
The growth of international tourism may very well be the best explanation for the second take-off of the Swiss hotel industry following the Second World War. Yet, the market was already a mature one, with a large number of competitors. The number of hotels grew steadily again for almost 20 years, before levelling off. Output, in terms of overnight stays, also

reached its peak around 1972. Since then, the industry has experienced thirty years of stagnation. Quite logically, the number of firms would diminish from here, going from a peak of 8145 firms in 1974 to 5777 firms in 2001, a 30% drop. Over the thirty years since the industry peaked, a clear concentration has taken place, leaving fewer competitors fighting over a stagnant market. We would therefore argue that the industry is now experiencing the fourth phase of the industry life cycle. We have now verified Hypotheses 1a and 1b and found evidence in favour of these.

A final variable, which we need to examine, is price. It is very difficult to find satisfactory statistics on the price of hotel rooms, going sufficiently far back in time and which can meaningfully be compared across time. The best we could do was to settle for the data of the Federal Office of Statistics contained in the calculation of the Consumer Price Index (CPI). This data, however, only contains a measure of the price of hotel rooms from 1977 onwards. Figure 4 shows the evolution of the price of a hotel room compared to the evolution of prices in general. What we see is that the price of a hotel room in Switzerland appears to have grown in real terms. This could be in line with what we could expect, as long as prices were falling in previous phases. With data going back only a quarter of a century, we are missing a full century's worth of data. We therefore have no clear picture of how prices evolved throughout the life cycle of the Swiss hotel industry. The quality of the underlying data may also be questionable. We are therefore not able to verify in a satisfactory manner hypotheses 1c. Neither can we refute this hypothesis.

FIGURE 4: Evolution of the Price of a Hotel Room

Price (Sept. 1977 = 100)



A Summary of our Findings

Comparing the evolution of the Swiss hotel industry with the stylized facts of industry evolution yields interesting results. The available data seems to fit reasonably well with the theory. The evolution of the number of firms has a “double-hump”, having twice peaked at around 8,000 firms. The reasons for this phenomenon are likely to be the combined effect of the tourism slump brought about by the Second World War, which brought about a first shake-out, as well as the high growth in international travel and tourism in the post- World War Two era. Aside from this period of stagnation, the number of firms appears to have reached a maximum around the early 1970s, at which point output ceased to grow. Following this period, a second and more pronounced shake-out has taken place and continues to take place. Recent data would confirm that the number of hotels in Switzerland is still declining. This data shows the number of hotels in 2002 to have been at 5,701 and in 2003 at 5658 and overnights (output) to be at 32,993,369 and 32,086,284, respectively. One reason for this high decrease in output was of the course the events linked to the September 11th 2001 terrorist attack in New York, but this alone does not explain the tendency. Coupled with the effects of

concentration of ownership and the increase in marketing franchises and hotel chains, the overall picture is one of a very clear pattern of market concentration. The evolution of the number of firms therefore fits that predicted in Figure 1 fairly well. This corresponds to stylized fact (iii).

Output growth appears as having fluctuated markedly through the period for which we have detailed data, but with a clear growth trend. We can say that output has exhibited high growth for a period, after which the growth rate has declined and converged to zero. We do not have data for the total sales value, and therefore can only partially confirm that the data fits stylized fact (i). We have not been able to confirm stylized fact (ii), concerning price evolution, due to a lack of data. We do strongly suspect, based on historical evidence, that the main inventions and innovations linked to the hotel industry took place at a quite early period. Evidence also suggests that innovation continues today. Examples are the recent fitting of high-speed internet connections in most high and middle class hotels, or the appearance of automatic check-in counters. The aim of this paper has not been a thorough investigation of innovative activity in the hotel industry, and we can therefore only put forward very limited evidence to prove stylized fact (iv). Finally, we have voluntarily omitted verifying stylized facts (v) and (vi).

The Spatial Allocation of Production

Tourism activities, like most other economic activities, are not equally distributed throughout the physical and industrial landscape. Most regions have to some degree specialized themselves in certain activities rather than others. Examining the reasons for this specialization has long been one of the *raison d'être*s of economic geographers. Their location theories have tried to explain regional specialization by focussing on such things as

the physical landscape; cost of inputs (such as labour costs); distance to inputs (linked to transportation costs); distance to customers; and other such variables. For instance, in some studies the hypothesis has been that firms will locate close to their most expensive input. In the case of primary aluminium manufacturing, for example, manufacturers need cheap electricity, and have therefore tended to locate in places like Norway, Iceland, Canada and Switzerland, where an abundance of hydroelectric power has made electricity a cheap commodity. In general one can say that the location of firms and the geographical distribution of these have been considered as either a rational cost-minimizing exercise, as a decision process involving uncertainty and bounded rationality, or as a strategic process involving future expectations and strategic decisions⁹. Whatever the logic, it is clear that industries are not scattered randomly, nor are they likely to be distributed evenly, across the landscape. On the contrary, individual organizations within an industry tend to locate in clusters around optimal locations for that industry. This point of view is not necessarily compatible with the view of proponents of the new economic geography movement, led by Krugman (1991) amongst others. They would argue that the concentration of industrial activities across space is largely influenced by historical accidents (Barrios & Strobl, 2004). As mentioned, we do not believe it is an accident if aluminium manufacturing has been concentrated in countries with access to cheap electricity.

The writings of Michael Porter on competition and the importance of economic clusters have been eagerly studied by management scientists, bringing about a renewal of interest in the geographical elements of economic growth. As a reminder, Porter (1998) defines:

“Clusters are geographic concentrations of interconnected companies, specialised suppliers, service providers, firms in related industries, and associated institutions

(for example, universities, standards agencies, and trade associations) in particular fields that compete but also co-operate.”

Although the concept of clusters still suffers from a somewhat vague definition, and despite some divergence amongst scholars as to what constitutes a successful cluster, literature on the subject has been growing, resulting in a range of new opportunities for research. There are still many potential avenues to explore both in terms of theoretical, analytical and empirical work. Regional development policy questions have also been dealt with in this light, and still need to be examined extensively. The emergence of cluster-oriented regional policies like it has been seen in Sweden and Denmark, for example, show that both private and public institutions believe in the efficiency of such policies.

Various strands of research have evolved from the study of specific clusters of organizations, working in the same industry. A commonly cited example of these is Silicon Valley in California. Many other examples exist from around the world and from many different industries. This clustering of interdependent, yet often competing, firms has been widely examined in the past two decades. Some scholars, particularly in Italy, have referred to these clusters as industrial districts. Others again refer to milieux innovateurs, regional innovation systems or learning regions. The similarities and differences between these strands of research have been widely discussed and are not the main subject of interest here. An overview of these various theories is found in Dicken & Malmberg (2001). What these theories have in common is the notion that location matters, and that there are benefits to be had from locating in clusters. We therefore expect that any industry will exhibit some degree of geographical concentration. This leads us to formulate a further hypothesis:

Hypothesis 2: Firms yield benefits from locating in clusters which exceed the costs of doing so, leading to the geographical concentration of firms (around optimal locations for that industry).

We therefore not only recognise the benefits of clustering, but further hypothesise that this clustering will take place around locations which yield some special benefits to the industry in question. These can be locations close to a major resource, or locations close to the customer. Again we will seek to verify if this behaviour can be detected in the case of Swiss hotels.

The Spatial distribution of Swiss Hotels

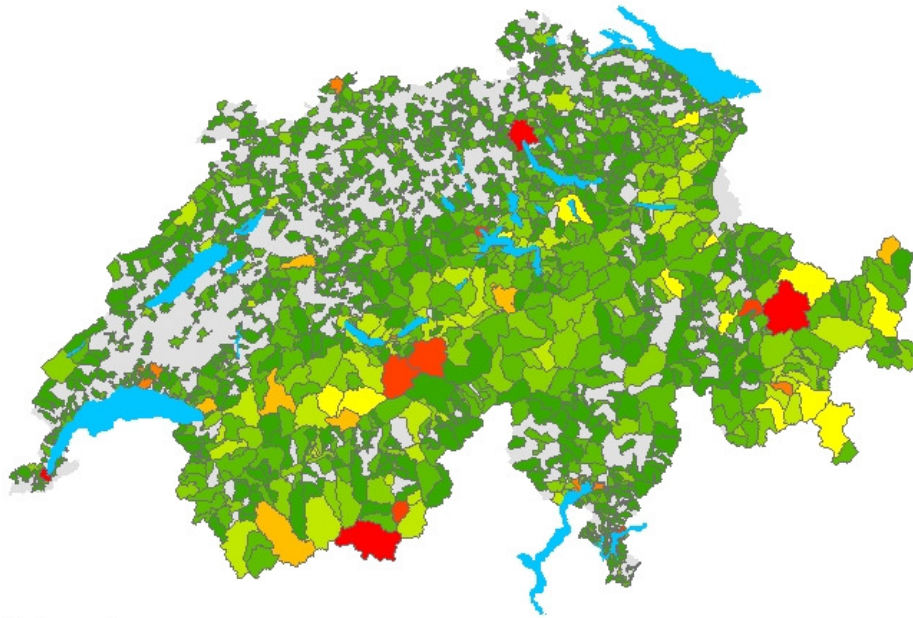
Using Geographical Information System (GIS) software, we have mapped data on the number of hotels per municipality. Figure 5 shows the geographical distribution of hotels in Switzerland in 2002. What is very clear is the uneven distribution of hotels throughout Switzerland. The areas, which benefit from above-average tourism activities are clearly visible. Other areas, non-coloured on the map, have no hotels at all. Most of Switzerland is characterized by little or no hotel-related activities. A few municipalities do however have up to a hundred hotels or more. Roughly speaking, these tourism hotbeds are the major Swiss cities, as well as a few very active mountain resorts. These are highlighted in the table below. This table shows that the top ten tourist areas, or destinations, in Switzerland, account for over thirty per-cent of the total number of hotel nights in 2002 (last column). Furthermore, we find evidence that this share is rising. We may therefore say that we have some evidence for hypothesis 2. The hotel industry exhibits clear signs of agglomeration or concentration around key locations. These key locations are the big cities, with business and leisure tourism, easy access and international airports, but also some major mountain resorts, such as Zermatt with its famous Matterhorn.

TABLE 3: Concentration in Overnight Stays 1992 and 2002

<table 3 goes here>

FIGURE 5: Distribution of Hotels in Switzerland

Geographical Distribution of Hotels in Switzerland 2002



Categories

Communes

Hotels2002.NUMBERHOTE

1 - 2
3 - 6
7 - 11
12 - 19
20 - 27
28 - 34
35 - 44
45 - 58
59 - 110

0 26'000 52'000 104'000 156'000 208'000 Meters

The Evolution of the Spatial Concentration of Production in Swiss Hotels

We have so far introduced the industry life cycle and discussed the location of production. Our next step is logically to examine any links which may exist between these two notions. We would like to propose a central hypothesis, which could in fact be viewed as a possible candidate for a further stylized fact of the industry life cycle.

Hypothesis 3: The geographical concentration of an industry varies non-monotonically across an industry's life cycle in such a way that during the phases of growth, as the number of producers increases, the concentration of the industry decreases. As the industry reaches the stagnation phase, the number of producers decreases and the concentration of these increases again.

Another way of putting this hypothesis is that there is an inverse relationship between the number of producers in an industry and the geographical concentration of these.

At the birth of an industry, an initial entrepreneur often chooses to locate quite simply in whatever place he happens to be dwelling at the time of his discovery, or rather, of his decision to market his discovery. If he is successful, he will soon be copied by rivals keen to reap some of the profits perceived in the new industry. Initial rivals will tend to be located close to the initial firm, since this is where the first customers exist. With time, some new entrants will explore other locations, perceived to be favourable either due to cheaper access to resources or due to unsaturated markets. As this process continues, firms will spring up in various places, leading to a decreasing geographical concentration and more distributed industry. This does not mean that the industry will not continue to exhibit concentration. On the contrary, the general conclusions of the previous sections, concerning location and

concentration hold true over the entire life cycle of the industry. However, the relative concentration will decrease in the initial phases of an industry. At some point the market reaches saturation and the industry matures. The eventual decline discussed in earlier sections of this paper sets in, leading to a shake-out. Firms are forced to exit the industry. But where are the firms located who are forced to exit? The answer, according to our hypothesis 3, is that the decentralized firms will have a higher probability of exit. This can be explained by the simple fact that in a declining market, the firms with the best locations will have an advantage over firms with less than optimal locations. This advantage may not lead to exit in a growing market with supernormal profits, but in a declining market, competitive advantage in the form of location becomes an important factor in determining the survival or exit of the individual firm. If this explanation is true, then we should be able to detect a specific development pattern of geographical concentration in the hotel industry.

What has happened to the geographical concentration of the Swiss hotel industry over the past decade? In order to answer this question, we have constructed Lorenz curves for the industry, for 1992 and 2002. The choice of this short time frame is the result of available data. We intend to extend the analysis once more data is made available in electronic format. The construction of these Lorenz curves involves cumulating the ordered percentages of hotels per municipality. For reminders, if the Lorenz curves were straight diagonal lines, this would indicate hotels to be equally distributed amongst the municipalities. In other words, each municipality would have an equal number of hotels.

What the Lorenz curve for 2002, in figure 6, shows is that the hotel industry is highly concentrated, with half of the Swiss hotel industry concentrated in a mere 1% of the municipalities. Furthermore, and even more interestingly, this concentration appears to be

growing. This can be seen in figure 7, which contains the Lorenz curves for both 1992 and 2002. Over the last decade, the Swiss hotel industry has been noticeably concentrating itself. Whilst the industry in total has seen the loss of 727 hotels in the period studied¹⁰, these hotels have not been randomly closed down across the country, but rather have been lost in specific areas, namely in outlying regions. Unfortunately, these tend to be the areas which were already not tourism intensive. In a sense, the areas already suffering from a withdrawal of tourism activities, have continued to suffer. The outlying regions, which often turn to tourism as a potential economic booster, have seen this booster fail.

FIGURE 6: Lorenz Curve for 2002

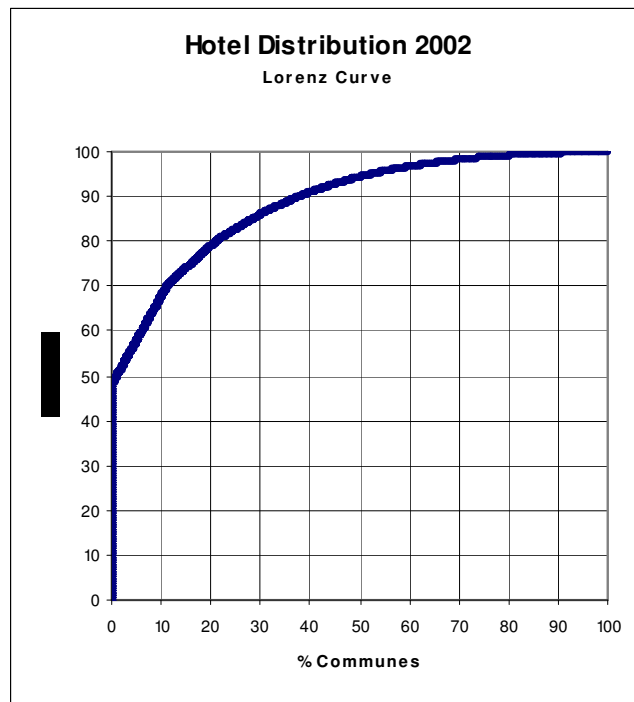
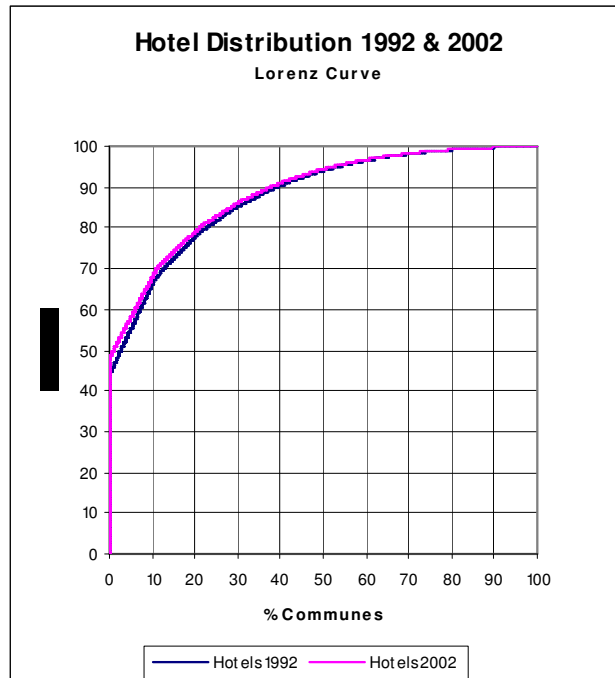


FIGURE 7: Lorenz Curve 1992 and 2002



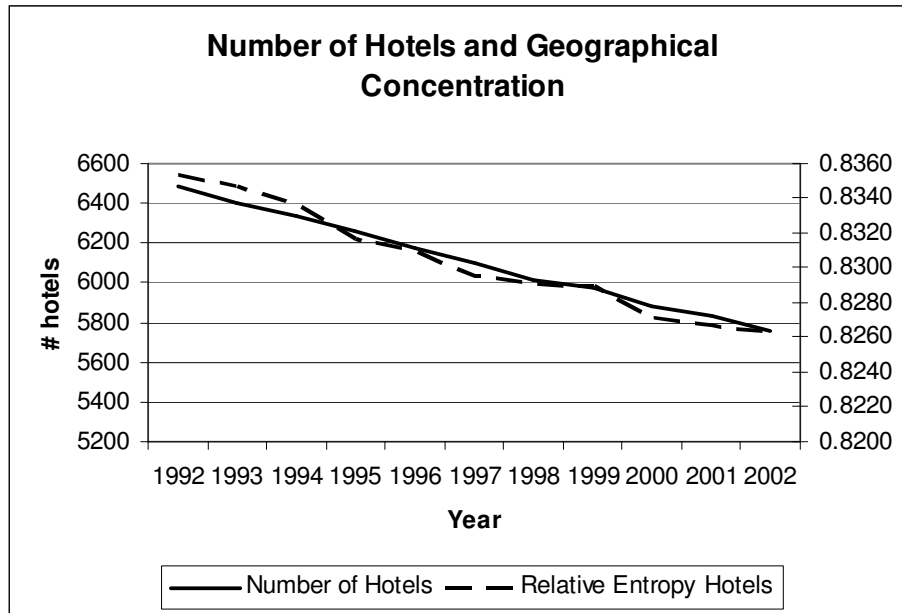
Another way of illustrating the concentration effect is to calculate a measure of relative entropy. Mathematically:

$$\frac{-\left(\sum \left(\frac{x_i}{\sum x_i} * \ln\left(\frac{x_i}{\sum x_i}\right)\right)\right)}{\ln(n)}$$

- Where x is the number of hotels in municipality i , and n is the total number of municipalities

When the entropy measure falls, this indicates a growing concentration, or diminishing dispersal. What figure 8 shows is that there is a relatively clear concentration effect. Furthermore, there is a very good correlation between the number of hotels and the geographical concentration as measured by the relative entropy.

FIGURE 8 : The Swiss Hotel Concentration Effect



Our analysis unfortunately only covers the final phases of the hotel industry life cycle. We are therefore only able to present partial evidence to support hypothesis 3. However, we are certainly not able to refute the hypothesis based on our evidence.

The Effects of Globalisation

Before concluding our analysis, the question of globalisation deserves some mention. Globalisation as an economic phenomenon is not entirely new. The last wave of globalisation took place in the century leading up to World War 1 and there are in fact similarities between this older wave of globalisation and the current one (Baldwin & Martin, 1999). However, the extent of the effects of the recent globalisation on travel and tourism has most certainly been greater than previously. It would therefore be tempting to assume that this globalisation should have consequences for the travel and tourism industries in general, and the hotel industry in particular. For instance, it could be thought that our conclusions concerning the importance of clusters and of location would be irrelevant in a global world where firms are free to locate anywhere, and where information technology makes it possible to work and

produce flexibly. However, this is not at all clear. As has been pointed out by a number of scholars, the advent of the internet and globalisation seems on the contrary to have strengthened the agglomeration forces present in these clusters (Leamer & Storper, 2001). There would therefore not seem to be any evidence that globalisation has reduced the importance of location.

Globalisation has most certainly had some effects on customers, in our case on tourists. It has also had its influence on the global travel and tourism market (Keller, 1996). On the one hand it is easier than ever to travel great distances, which should encourage tourism. On the other hand, the fact that we can travel the internet from our armchair might have some influence on our willingness to travel in person. The question of virtual tourism substituting for real tourism has been dealt with by scholars like John Urry. On the one hand the ease with which modern man is able to travel around the world has led to a change in his perception of time and space (Urry, 2001a), on the other it has opened new possibilities in terms of organising and experiencing work and leisure, creating global citizens (Urry, 2001b). Virtual communities have arisen and a new form of inequality has developed: the divide between those who travel, and consider it their right, and those who do not (Urry, 2001b). Crucial to our analysis of the effects of these changes on the arguments presented in this paper, is the observation that physical proximity remains a vital factor for both business and leisure travellers. The need for corporeal mobility has not in any way diminished because of globalisation (Urry, 2001b).

Tourists travel differently today than they have in the past. A close investigation of the Swiss case, for instance, reveals that the average number of nights spent during a visit to Switzerland has for most types of tourists gone down over the past decade or more. People

would seem to travel more often but make shorter stays. The influence of this change on the industry life cycle is difficult to evaluate. However, there are no convincing arguments why this influence should be important. In fact, the life cycle of the airline industry may very well account for the changes in airline travel which we often link to globalisation. It could be that the changes which we attribute to globalisation could just as easily be explained within the conceptual framework of the product or industry life cycle, the product being the commercial jet airplane.

We believe that based on our current understanding of globalisation as a phenomenon, there is no reason to believe that globalisation should have any particular influence on the importance of location¹¹, on the validity of the industry life cycle model, or on our hypotheses as presented in earlier sections of this paper.

Concluding Remarks

In this paper we have attempted to verify the applicability of the theory of the product or industry life cycle for the study of tourism, using the example of the Swiss hotel industry. Official published data from the Federal Swiss Office of Statistics was used to construct time series of the number of hotels, output and price. The data was then confronted with the stylized facts of the industry life cycle.

We found that the theory could well explain the evolution of the Swiss hotel industry. We were able to verify this for the evolution of the number of firms, as well as the output. We produced only very limited evidence concerning innovative activities. It would appear from this evidence that innovation occurs throughout the life of a product, but the most important and radical innovations occur earlier rather than later.

Whereas the findings have gone some way in shedding light on the applicability of life cycle analysis in the hotel industry, some questions remain unanswered. These may be the object of further research.

Firstly there is the question of industry concentration, and what we should be measuring when we look at the number of firms. We have used the number of hotels in our analysis. The real industry concentration may in fact be greater than we measure using this unit. Although most hotels are independently owned and operated, many are also jointly owned, some even belonging to industry conglomerates. The Accor Group, for example, operates 26 hotels in Switzerland. Franchises and marketing-based co-operations are further examples of concentration. The Golden Tulip chain today operates 270 hotels and Best Western 65 hotels. The real competitive picture then may well be quite different than the one we get by looking only at the number of establishments. Based on figures available from the Swiss Hotel Association¹², over 1200 Swiss hotels are members of 33 groups active in Switzerland. These include integrated groups, franchising and marketing co-operations. Getting detailed, historic information about ownership and partnerships within the hotel industry would, however, be very difficult, if not impossible, on a national basis.

A second open question is that of sales and prices. Further research needs to be done in order to establish time series on the sales within the industry, as well as the average room prices. In order to make a meaningful full life cycle analysis, this data must extend back to 1880 at least.

A third possible avenue of research is exit hazard with respect to the age of the firm. Quantifying exit hazard over the life cycle of the hotel industry requires detailed data of the number of firms entering and exiting the industry as well as their age at exit. We did not locate such data for all of Switzerland. It should, however, be possible to conduct a meaningful survey in order to estimate the hazard. This survey could also be used to get more detailed information about innovative activities over the life cycle of the hotel industry.

Finally, we wish to make a comment concerning the scale which one uses to examine the life cycle. There has been some argument amongst scholars as to what scale can meaningfully be used to examine an industry. This is perhaps more important in a service industry than in manufacturing. We have simply used the nation as a scale for our analysis. We could have alternatively used the resort, or city. This would be in line with the tourist area life cycle model (Butler, 1980). We could also have used some form of industry cluster (Porter, 1980). In the case where a country is sufficiently large that there are clearly identifiable and individual resorts or clusters, which are thought to have different life cycles, then the scale used could be the resort or cluster. Switzerland being a small country with a fairly uniform product to offer the tourist, we believe that using a different scale would not change our results very much. In addition to this, we would contend that the industry life cycle model seeks to explain something entirely different than the tourist area life cycle model. The tourism resort is in fact made up of a number of different industries, each evolving within a distinct evolutionary industry life cycle and competitive environment.

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¹ The main source of historical information for this section is Bernard (1978)

² Bernard (1978)

³ In fact, even today Valais has relatively little industry.

⁴ Source : Bernard (1978)

⁵ Although most forms of gambling were prohibited by law, some were tacitly accepted

⁶ Source: Tissot (2000)

⁷ Source : Statistisches Jahrbuch der Schweiz (Zünd (1969) gives different figures which are much higher)

⁸ In fact this is not entirely true, since the economic slump of the period around 1873 had already affected tourism for a few seasons.

⁹ For a more thorough examination of location theories, one can refer to for instance Hayter (1997) or Wheeler, Muller, Thrall & Fik (1998)

¹⁰ Source: OFS

¹¹ We are not saying that globalisation may not affect the optimality of locations for any given industry. It is clear that the profitability of a given location may vary due to the globalisation process. The transformation of China into a market economy is having great effects on Western firms' choices of production locations.

¹² http://hotels.swisshotels.ch/sites/hotelgruppen_start.asp, february 25th 2004